



2017 Spring Electrofishing (SEII) Summary Report

Marion Millpond (WBIC 294500)

Waupaca County

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Introduction and Survey Objectives

In 2017, the Department of Natural Resources conducted a one night boomshocking survey of Marion Millpond in order to provide insight and direction for the future fisheries management of this water body. Primary sampling objectives of this survey were to characterize species composition, relative abundance, and size structure. The following report is a brief summary of that survey, the general status of the fish populations and future management options for Marion Millpond.

Acres: 116 Shoreline Miles: 3.8 Maximum Depth (feet): 12
Lake Type: Impoundment Public Access: Two Public Boat Launches
Regulations: Only two northern pike may be kept and they must be at least 26". All other species statewide default regulations.

WISCONSIN DNR CONTACT INFO.

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Survey Information

Site location	Survey Date	Water Temperature (°F)	Target Species	Total Miles Shocked	Number of Stations	Gear	Number of Netters
Marion Millpond	5/4/2017	57	All	1.0	2	Boomshocker	2

Fish Metric Descriptions PSD, CPUE, and LFD

Proportional Stock Density (PSD) is an index used to describe size structure of fish populations. It is calculated by dividing the number of quality size fish by the number of stock size fish for a given species. PSD values between 40 - 60 generally describe a balanced fish population.

Catch per unit effort (CPUE) is an index used to measure fish population relative abundance, which simply refers to the number of fish captured per unit of distance or time. For electrofishing surveys, we typically quantify CPUE by the number and size of fish per mile of shoreline. CPUE indexes are compared to statewide data by percentiles. For example, if a CPUE is in the 90th percentile, it is higher than 90% of the other CPUEs in the state.

Length frequency distribution (LFD) is a graphical representation of the number or percentage of fish captured by half inch or one inch size intervals. Smaller fish (or younger age classes) may not always be represented in the length frequency due to different habitat usage or sampling gear limitations.

Survey Method

- Marion Millpond was sampled according to spring electrofishing (SEII) protocols as outlined in the statewide lake assessment plan. The primary objective for this sampling period was to count and measure adult bass and panfish. Other gamefish may be sampled but are considered by-catch as part of this survey.
- One mile of shoreline was sampled with a boomshocker. All fish captured were identified to species and gamefish and panfish were measured for length. All gamefish were weighed as part of this survey.
- Fish metrics used to describe fish populations include proportional stock density, catch per unit effort, and length frequency distributions.



Size Structure Metrics

Species	Total	Average Length (inches)	Length Range (inches)	Stock and Quality Size (inches)	Stock Number	Quality Number	PSD	Percentile Rank	Size Rating
BLUEGILL	579	4.1	1.9 - 6.9	3.0 and 6.0	560	20	4	8	Low
PUMPKINSEED	196	4.5	2.9 - 6.9	3.0 and 6.0	195	9	5	19	Low
LARGEMOUTH BASS	40	11.0	2.6 - 17.8	8.0 and 12.0	31	17	55	52	Moderate
YELLOW PERCH	108	4.8	2.9 - 7.9	5.0 and 8.0	48	0	0	0	Low

Abundance Metrics

Species	CPUE Total (number per mile)	Percentile Rank	Overall Abundance Rating	Length Index	Length Index CPUE (number per mile)	Length Index Percentile Rank	Length Index Abundance Rating
BLUEGILL	579	98	High	≥ 7.0 inches	0.0	0	Low
PUMPKINSEED	196	99	High	≥ 7.0 inches	0.0	0	Low
LARGEMOUTH BASS	40	81	High	≥ 14.0 inches	12.0	91	High
YELLOW PERCH	108	96	High	≥ 10.0 inches	0.0	0	Low



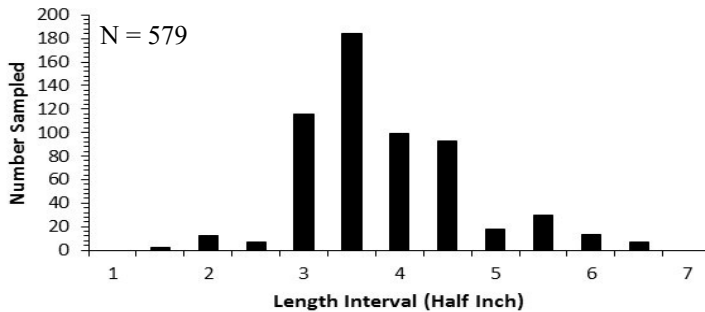
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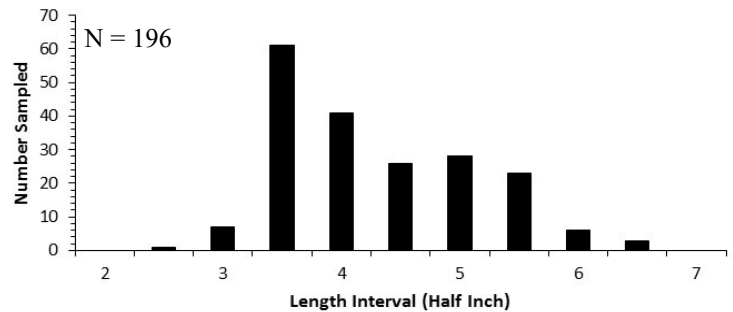
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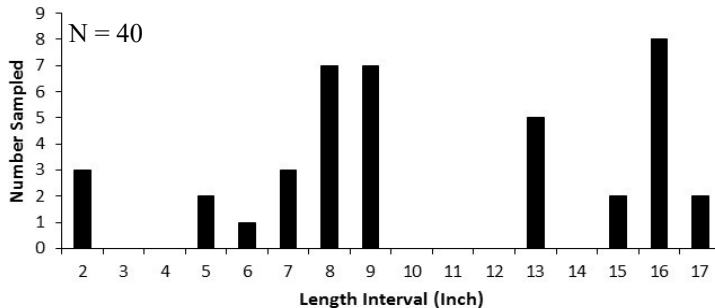
Bluegill Length Frequency



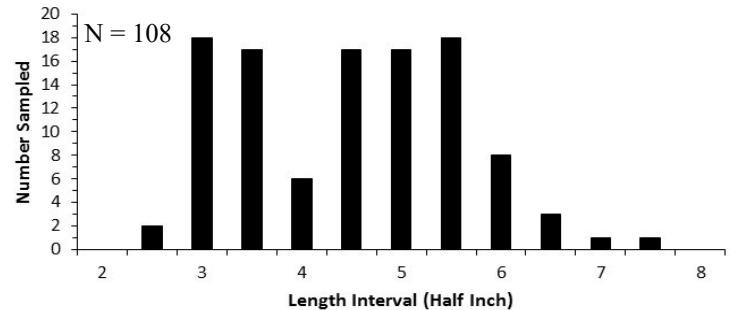
Pumpkinseed Length Frequency



Largemouth Bass Length Frequency



Yellow Perch Length Frequency



Summary

- A total of 1,036 fish from 13 species were collected during our survey. The most frequently encountered and common species were bluegill (579), pumpkinseed (196), yellow perch (108), largemouth bass (40), brown bullhead (27), and black bullhead (24).
- Other fish species sampled in lower abundance include golden shiner (24), northern pike (11), yellow bullhead (9), warmouth (8), black crappie (7), common shiner (2), and white sucker (1).
- All fish captured were native species.
- Largemouth bass were the dominant gamefish captured in our survey. Size structure and abundance metrics were found at moderate - high levels. The largest bass sampled was 17.8 inches and 39% of the largemouth bass captured were ≥ 14.0 inches.
- Eleven northern pike were sampled. Fyke nets are a more appropriate gear to assess the northern pike population. A fyke net survey was conducted in spring 2017. A separate report was written for the fyke net survey.
- Panfish populations were mainly comprised of bluegill, pumpkinseed, and yellow perch. All three of these species were found at high densities with small size structure. Bluegill density increased by 60% and pumpkinseed density increased by 70% compared to the same survey in 2016. Yellow perch density decreased by 32% compared to 2016 densities. Only 4% of the bluegill and 5% of pumpkinseed captured were greater than 6.0 inches and none of either species were greater than 7.0 inches. No yellow perch greater than 8.0 inches were captured.
- Marion Millpond has had a high density of bluegill, pumpkinseed, and yellow perch for the past several years. Size structure has also been poor over the last couple of years, and is still declining for some species. Poor size structure is often observed when densities remain high because there are so many fish competing for limited resources, meaning few resources are available for individuals. With few resources available to individuals, they grow very slowly.

Management Options

This survey was primarily intended to assess largemouth bass and panfish populations. Other species are captured but different survey techniques are typically used to better assess their population metrics. Therefore, management recommendations are focused on bass and panfish.

Largemouth Bass

- Although largemouth bass CPUE is rather high when compared to other lakes throughout the state of Wisconsin, we would like to maintain these numbers because of the high density of small panfish. Currently, largemouth bass don't appear to be experience density dependent competition as the density of largemouth bass ≥ 14.0 inches was also very high. Prey resources were not limiting in Marion Millpond.
- Consider putting a special regulation on largemouth bass to maintain or increase their density to increase predation on panfish.

Panfish

- Bluegill, pumpkinseed, and yellow perch densities were very high and size structure was poor. Efforts should be made to reduce panfish densities. When densities are lower, there are more resources available for each individual, resulting in faster growth rates and more fish that are sizes desired by anglers.
- Predators have been established to reduce panfish densities. The minimum size limit on northern pike not only maintains a quality fishery for northern pike, it will help ensure there is a higher density of this predator in Marion Millpond. Given the abundant forage that is available, a special largemouth bass regulation (e.g., a minimum length limit of 18 inches and daily bag limit of one) should be considered to increase largemouth bass density.

Other Management Objectives

- Continue to work with WDNR staff and local lake management organizations to manage aquatic plants. High densities of invasive plants often inhibit the ability of predators to effectively forage resulting in slow growing predator populations. Additionally prey fish (e.g., bluegill) populations can become overabundant and slow growing when predators cannot effectively forage on them.